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# The regional management model for ecotourism planning in the Rayong coastal area, Thailand

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## ABSTRACT

In the coastal area with developing tourism, ecotourism is regarded as a means of the regional policy. To perform sustainable ecotourism needs to realize the management system on the basis of local's participation and willingness. In this study, the objective was to construct the regional management model on the basis of resident's perception and awareness to assess some important ecological and economic interlinkages between tourism, coastal environment and local society in the Rayong coastal area, Thailand. In addition, we suggested the ecotourism planning and regional management from the result of modeling. For the modeling we gathered the available statistical data and materials on tourism, environment, fishery, and local community. Furthermore, we conducted the questionnaire survey for 188 groups of tourists visiting to the Rayong coastal area, and 172 families living in the area. From this survey, some important problems in developing local community emerged, i.e. the garbage-waste problem, the economic disparities between the fishermen and the worker in tourism business. Based on these problems, we constructed the regional management model in the Rayong coastal area. According to this model, it was concluded that the ecotourism plans including the employment of the fishermen and the trash-picking program were effective to good community development in this area.

**KEYWORDS:** ecotourism, area study, coastal management, questionnaire, fishery, tourism, local community

## INTRODUCTION

It's noted generally that natural environment are getting worse and worse with development of human society. In coastal area especially, we can see often the environmental deterioration because coastal zone is a point of contact between the land and the sea. In the various impacts on the coastal area, the tourism impact is rapidly increasing recently. Nature-based tourism is most popular among the tourists, in which marine tourism industry is rapidly growing. (Orams, 1999; Shackley, 1996). This trend of tourism development is expanding to the world. For developing countries, a rapid growing tourism industry has proved to be an increasingly important source of foreign exchange inflows. Nature-based tourism is an important tool for generating employment and income in underdeveloped, biodiversity-rich Third World regions because it requires comparatively small investments (Wunder, 2000). However, the tourism industry is increasingly having an ecological impact on the world's protected areas and the rising number

of tourists presents both threats and opportunities (Goodwin, 1996).

Against this background, many regional managers and planners are beginning to seek the way to establish the regional management system which can realize environment conservation, tourism development, and local community development at all once. The good example of the regional management system is "Ecotourism". Ecotourism is compounded of many interrelated processes which influence the potential and success of ecotourism within a protected area and links between natural areas, the local people and tourism (Ross and Wall, 1999a). In the process of development of ecotourism, local perceptions will be an important factor influencing how its development proceeds (Campbell, 1999). Furthermore, if planning and decision-making do not involve local populations, then ecotourism will not succeed, and may even be detrimental to local communities (Ziffer, 1989). Therefore, the local perception is important

key to consider the possibility of ecotourism success. Additionally, to date, although many studies have been performed about areas which are developing as an ecotourism spot, just a few have assessed how the sustainable ecotourism is realized in the place where the ecotourism is introduced in the future.

In this study, we conducted the questionnaire survey for the residents and the tourists in the Rayong coastal area which locates in the east part of Thailand. The objectives were to construct the regional management model on the basis of the resident's and the tourist's perception to assess some important ecological and economic linkages between environment, tourism, and local society in the Rayong coastal area.

In addition, we suggested the ecotourism planning from the result of modeling.

### STUDY AREA

Rayong province locates at the southeast, 210 km from Bangkok faces south onto the Gulf of Thailand. Many tourists visit this area to enjoy the marine sports and their relaxation. The number of tourists increases at approximately 4% per year in the past five years. In 2002, there were approximately 2.4 million tourists (Tourism Authority of Thailand, 2003).

Rayong province has another aspect of industrial area. In 1982, Thailand government has formulated projects to develop the coastal area. Rayong province was determined to be an important stronghold for the heavy industrial development. The agricultural areas were replaced by heavy and continuing industries. And more than 6,500 rai (2,535 acres) of marine areas have been reclaimed. In 1991 when Rayong province was also developing as the

tourist spot, marine areas were utilized as the reservoir of waste sink for heavy industries. This industrial development caused environmentally poor outcome in the air, the rivers and the sea (Sawasdee Foundation 2001). Although the scientific basis is not enough, this development is able to affect the ecological balance of the sea area. The area affected mostly was the coastal area, in which the resident's economic living by fishery was gotten collapsed. The total quality of marine fish landing was 166,270 tons at peak year in 1994, and then was decreasing to 79,943 tons in 1999 (Department of Fisheries, Thailand, 2002).

### METHODS

The questionnaire survey was conducted in the Rayong coastal area from 20 February to 10 March 2003. The questionnaire was prepared in Thai and in English. The questionnaire survey for the residents was conducted in villages and towns along the coast. For the tourists, we conducted in 5 points; "Ban Phe", "Mae Pim Cape", "Samet Island", "Mannai Island", "Mannork Island" (Fig. 1). We interviewed 172 residential households and 188 tourist groups, of which 171 and 186 were valid respectively. The contents of the questionnaire were the personal evaluation about natural environment, economic condition and social infrastructure in the 10 years ago, at present, and in 10 years respectively, and about the environmental problem in the Rayong coastal area. Furthermore, we asked for respondent's opinion on these contents by the open question. For the residents in fishing villages, we interviewed additionally about recent fishery. The valid respondents of this questionnaire were 24 households. As for questions that were not filled out or inadequate, we excluded these responses from consideration.

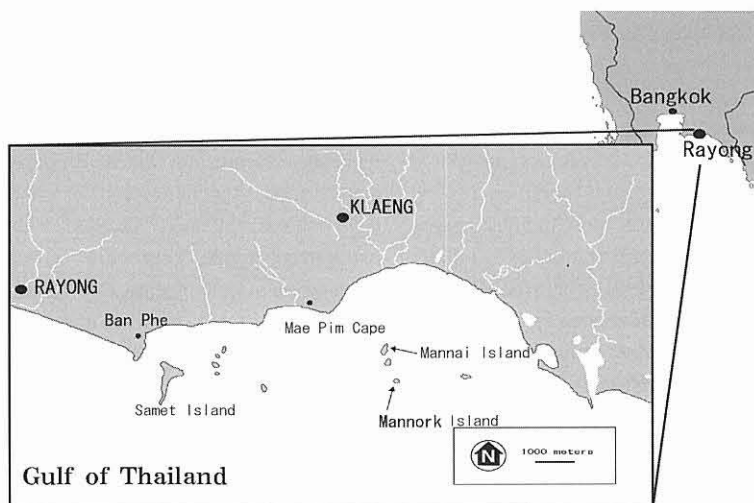


Fig. 1. The Rayong coastal area. This area locates at the southeast 210 km from Bangkok

## RESULTS AND DISCUSSION

### *The current situation of local community from the perspective of the residents*

We asked the residents for the personal evaluation about natural environment, economic condition and social infrastructure in the 10 years ago, at present, and in 10 years respectively. The number of valid responses was 170 respectively. Figure 2 shows the result of the resident's evaluation about natural environment and economic condition.

As to natural environment, many residents felt the past condition had been bad, and the current condition was better than the past. The perceptions of the future condition tended to vary with each respondent. Residents' perceptions toward the past and current economic conditions were similar to the ones toward the natural environment. In point of future, the residents tended to have optimistic feeling, although the responses varied to some extent. As for social infrastructure, many residents felt that the past condition had been bad, and the current condition was better than the past, moreover the future condition would be better than the current. According to these results it was considered that the perception about natural environment and economic condition varied with the individuals. Consequently we considered the resident's evaluation additionally on the basis of the resident's socio-demographic data.

### *The difference of the perception between the fishing households and the worker of tourism industry*

As a result of the analysis the resident's perception on the basis of each socio-demographic data, the difference of the perception between the fishing households and the worker of tourism industry emerged. Most residents' jobs in this area were related to either fishery ( $n = 44$ ) or tourism industry ( $n = 90$ ). Many of the workers of the tourism industry tended to have optimistic feeling about natural environment and economic condition at present and in the future respectively. On the other hand, many of the fishing households have pessimistic feeling. As for the present natural environment, the difference between them was significant at 0.5 % by the chi-square test. As for the future natural environment, the present and the future economic condition, the differences was significant at 0.1 % respectively. These differences of the resident's perception

are supported because the fishery was falling into the decline in this area (Department of Fisheries, Thailand, 2002), while the tourism industry was developing (Tourism Authority of Thailand, 2003).

There are many fishermen's opinions concerning the decrease of the marine fish landing in the questionnaire. As to the current condition of fishery, 66 % (16 of 24 respondents) answered the fish landing decreased compared with the past. Only 1 respondent answered "Unchanged". The others unanswered. As to the fishery in future, 88 % (21 of 24 respondents) answered the fish catches will be decreasing. And the other answered "No idea". Additionally, we asked 13 respondents who answered the fish landing would be decreasing about the future fishery. According to this result, 62 % (8 of 13 respondents) answered they would continue fishing here, from which we can see the fishermen persist in fishing in this area. As for the reason of the decreasing of fish catches, there is a opinion that vessel's trawling have possibility to decline the quality of the marine fish landing.

In terms of the resident's income, the average monthly income per household in Rayong province in 2000 was 14,739 Bahts (National Statistical Office, Thailand, 2002).

According to the questionnaire data, the average monthly income of fishing households ( $n = 22$ ) was 12,850 Bahts, while the one of the worker of tourism industry was 18,458 Bahts. We can see the economic disparity between the fishing households and the worker of tourism industry. It was clarified that the fishing households had anxiety about their living and the fishing in future because of small income compared with the other, the decreasing of the fish catches, and the futureless of the fishing in this area.

### *The environmental condition from the perspective of the residents and the tourists*

The environmental perception of the residents had difference between the fishing households and the worker of tourism industry as we had mentioned above. This difference was the most in perception for the future.

In addition, we interviewed the residents about the most important environmental problem in this area. The valid responses were 151 samples. In the whole, there

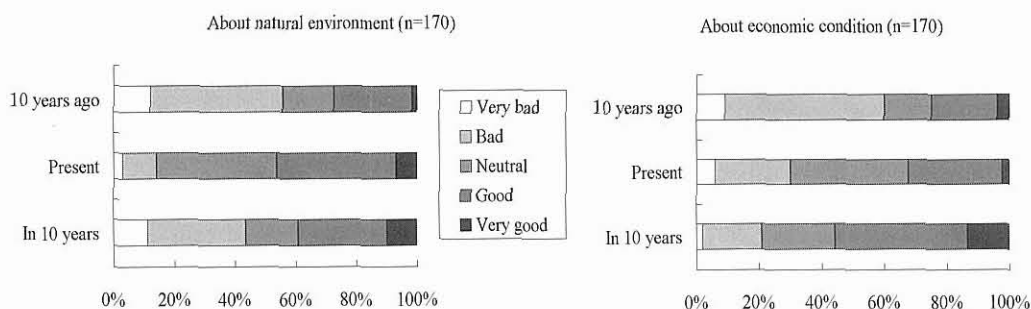


Fig. 2. Resident's evaluation about natural environment (left) and economic condition (right)

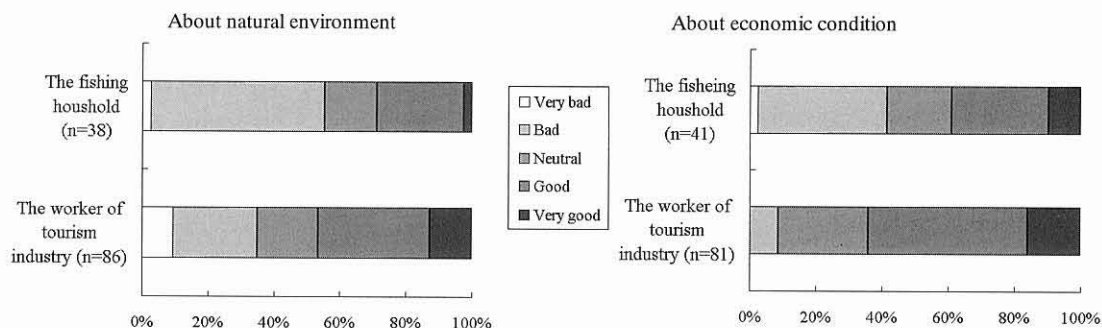


Fig. 3. The differences of the perception about natural environment (left) and economic condition (right) in 10 years between the fishing households and the worker of tourism industry (the differences were significant at 0.1% respectively by the chi-square tests)

are 40 % of the residents who answered "Garbage / Bad smell". The second and the third opinion were "Air pollution", "Decrease of marine species", the percentages of which were 21 % and 12 % respectively. The percentages of respondents answered "Nothing" were 12 %. These results show the residents in the Rayong coastal area have high level of awareness about the garbage problem.

For the purpose of the research on the tourist's evaluation of natural environment in the Rayong coastal area, we interviewed the tourists visiting this area. The number of valid responses was 176 samples. Although the responses varied by the questionnaire spots, there are more unfavorable responses of "Very bad", "Bad" than "Very good", "Good" in each questionnaire spots except "Samet Island" which is designated as the ocean national park. In the next, we asked them about impression on the Rayong coastal area by the open question. As for positive remark (n = 102), the answers were something about "Beach", "Clean Sea", "Nice climate", "Food", and

"Good access". On the other hand, as for negative (n = 105), many responses were concerned with the garbage problem, the percentages of which were even 61 % of respondents who remarked negatively. In other responses, there were "Too many tourists", "High-priced". These results suggest that the environment in the Rayong coastal area was not good from the perspective of the tourists and the garbage was important problem for developing the tourism industry.

"Garbage" which mattered among the residents and the tourists is scattered along the street, on the beach, over the sea, and around the villages. Except the garbage over the sea, large part was thrown away by the residents. This garbage is much amount, to the extent which we cannot collect or clean up easily. Especially around the fishing villages there are in excess amount of the garbage. Some of the fishing households live in the house built over the garbage. Furthermore, the garbage condition got worse and worse because stray dogs foraged for food.

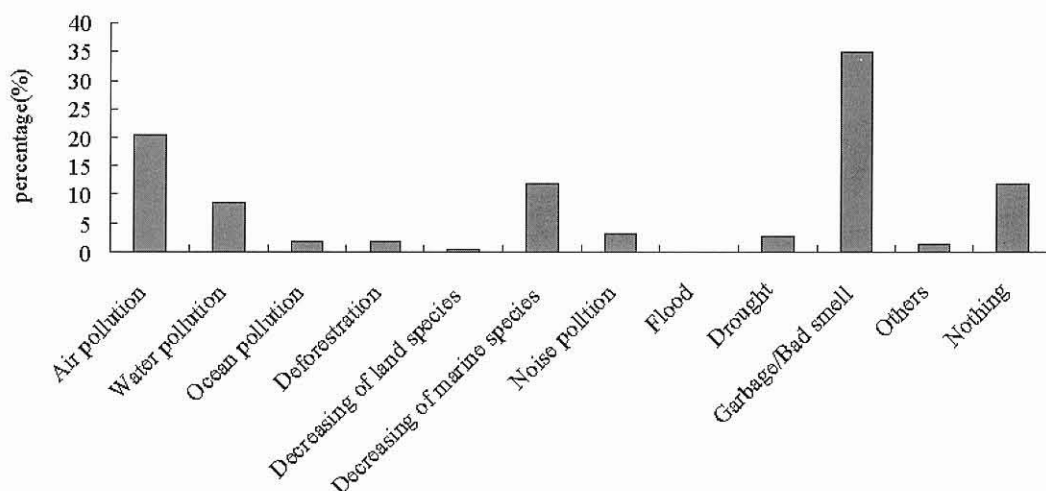


Fig. 4. The most important environmental problem in this area from the perspective of the residents: n=151

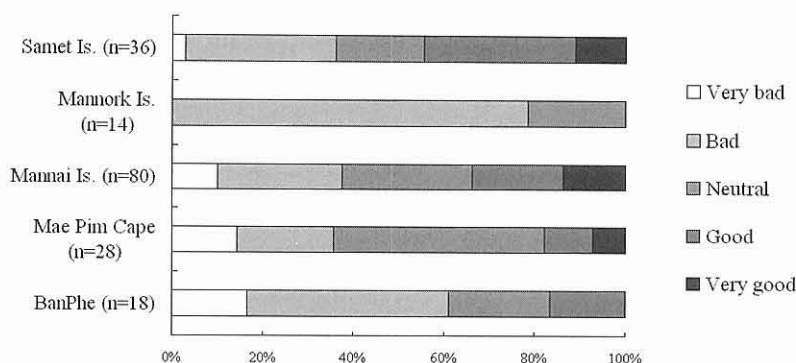


Fig. 5. The tourist's evaluation of natural environment in the Rayong coastal area (Samet Island, Mannork Island, Mannai Island, Mae Pim Cape, Ban Phe)

## CONCLUSION

*The regional management model in the Rayong coastal area*  
Based on these problems and some statistical data, we constructed the regional management model in the Rayong coastal area. This model's components are "Natural environment", "Residents", and "Tourists" (Fig. 6). As a subclass of "Natural environment", there are "Fishery resources", and "The amount of Garbage". And as a subclass of "Residents", there are "Fishing households", and "Worker of tourism industry". The interlinkages between all components show certain impact of one to the other, e.g. economical revenue, environmental destruction, and increment of the tourists. Introduction of ecotourism creates new linkages in this model.

The current situation of tourism is very well and if the Rayong coastal area develops under the present circumstances, it is expected that the tourism industry grows and with which the number of the tourists is increasing for some time in the future.

Although it is not clear whether the ocean pollution gets better or worse, it is suspected that the decrease of the fishing catches still remain for a while. Some measures toward the coastal fishery and the fishing households are required quickly.

A lot of tourists, especially the foreign tourists, are displeased for the garbage. Recently the eastern coastal area in Thailand is being developed as a tour spot, for example Chanthaburi province and Trat province. The neglect of the garbage problem will cause the drain of the tourists to the other tour spots. The effect of the tourists on environmental doesn't come to the surface yet. But, the region managers or planners have to pay attention to the environmental pollution and the garbage problem caused by the tourists. Therefore, it is considered that the garbage problem was dealt with seriously from the resident level.

In terms of the resident's income, the income of the worker of tourism will increase as tourism develops in this area. In the other hand, the income of the fishing households will decrease as fishery gets into a decline. This income gap is expected to widen more and more in the future. From the result of the questionnaire, most of the residents are natives. Some emigrated to work from other area. Immigrant flow is getting to extend, and in the future this trend will go on because the tourism industry will also develop. The important thing is to provide economic and social revenue to the residents accurately, not to the tourism companies. Additionally, it is important to give alternative income sources to the poor fishing households.

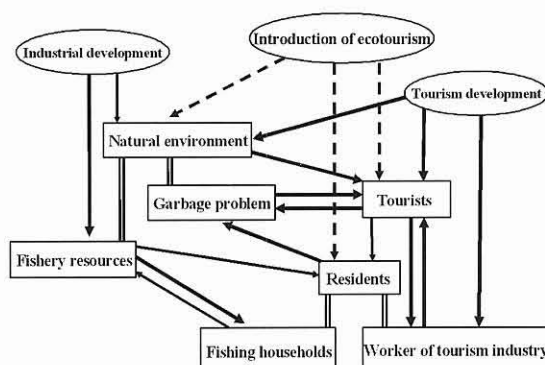


Fig. 6. The regional management model in the Rayong coastal area.



### *Ecotourism planning in the Rayong coastal area*

To date, the definition of Ecotourism has been arranged by lots of scientists (Boo, 1992; Ceballos-Lascurain, 1991; Cater, 1994; Ziffer, 1989), and the concept was modeled by Ross (1999b). However, the reality varied with each land characteristic and the main purpose of ecotourism. In this study, considering the ecotourism planning in the coastal area, it was clarified that the local community had some groups which had different aspects. In the case there are some local groups related with ecotourism like the Rayong coastal area, it is considered that the relationships between local groups or their occupations are very important. Additionally in case there are many low-income fishing households like this, even if they are related to ecotourism directly, their livings should not be oppressed with the development of ecotourism. By contrast, we have to make a ecotourism plan which can present new employment opportunities to them.

As Campbell (2002) said, local perceptions will be important factor in promoting to develop on the ecotourism. On the basis of this concept, the fact that the fisheries households feel good about the environmental and economic condition will fuel their motivation so much to participate in ecotourism. Meanwhile, although the local people tended to have further income, but not want any life-altering risk in this area (Okuyama *et al.*, 2003). Additionally, we can see the fishermen persist in fishing in this area. This implies that the difficulty in introducing ecotourism into the Rayong coastal area, because their hope for not altering the present life could motivate them to avoid new things. To make the fisheries households to be willing to develop ecotourism by themselves, ecotourism will have to be something appealing that they can benefit from. Therefore, when we will introduce ecotourism, whether we can make a program which gives another job that the fishing households want (for example, the short time job which we can employ many people) to them can be the key to the success of ecotourism.

To solve the garbage problem and the economic discrepancy is the best way to manage this regional area. In order to realize ecotourism, it should make the ecotourism planning including the solution of these problems. Now the Sea Turtle Conservation Station in Mannai Island is promoting the project to gather the tourists (ex. constructing the information center). The prospective scenarios in introducing ecotourism in the Rayong coastal area are as follows; to increase the tourists because the tourists get another chance to visit to this area, to secure the resident's income, especially the fisheries households, because the employment opportunities are increased. Concretely, the employment as a reception in the information center, the boatman to some Islands and the cleaner in the Rayong coastal area are considered as the appropriate ecotourism planning.

### ACKNOWLEDGEMENT

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